



BUILDING A SCHOOL-BASED PROFESSIONAL LEARNING MODEL IN MALAYSIAN CONTEXT

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ABSTRACT

Teaching is creative, complex and requires high skills. Furthermore, teachers must constantly deepen their knowledge and skills to remain effective throughout their careers. Teachers' knowledge and skills can be enhanced through the effective school-based professional learning. The purpose of this paper is to investigate the relationships between school-based professional learning leaders' roles and professional learning models with teachers' practices. This study is conducted at 60 secondary schools in Malaysia where the information is gathered from two phases of data collections by using multi-stage cluster sampling technique. The exploratory factor analysis and confirmatory factor analysis are used to obtain construct validity. Data from the survey is used to test the relationships among the three dimensions expressed in the proposed model. The findings indicate there is a significant relationship between school leaders' roles and professional learning models with teachers' practices. The source of data collected is Malaysia, hence, the results may not easily generalized to other areas or countries. However, the findings are valuable for school-based professional learning developers' and teacher educators references, especially for those whose circumstances are similar to those in Malaysia. The implications of this study shows that the professional learning leadership and professional learning models have important impact toward teachers' professional development.

Keywords: School-based professional learning, Teacher development, Factor analysis.

I. INTRODUCTION

Teaching is creative, complex and requires high skills. Hence, teachers must constantly deepen their knowledge and skills to remain effective throughout their careers. Teachers' knowledge and skills can be enhanced through the effective school-based professional learning. This is because teachers need to continually updated their skills in

line with changes to either the content knowledge or teaching and learning approaches [37]. Teachers who stop learning after the pre-service training will fail to fulfill their roles effectively and become 'prisoners of their own experiences' [38]. Therefore, continuous professional learning is a must for every teachers.

Teachers' knowledge and skills can be enhanced through effective school-based professional learning. According to Guskey [13], Bredeson [6] and Zepeda [47] effective professional learning has the following elements; continuous, school-based and job-embedded, incorporates multiple data sources to plan, implement and evaluate professional practices as well as involves teachers and principals in identification and design of learning experiences to meet individual and collective needs. Thus, teachers will be more effective if professional learning activities have been planned and implemented in school effectively.

This aspect became more important when Ministry of Education (MOE) through its master plan 'Konsep Pengoperasian Latihan Peningkatan Profesionalisme Bidang Pengajaran dan Pembelajaran Bagi Pegawai Perkhidmatan Pendidikan', has implemented school-based professional learning to all teachers. This plan emphasis on site-based professional learning and let manager manage concept which has been governed by respective school administrators [31]. By instilling this plan, it showed how serious the MOE in enhancing teachers knowledge and skills nationwide.

The study carried by Muhammad Kamarul Kabilan Abdulah and Abdul Rashid Kamarul [33] found that professional learning opportunities were limited especially at the schools level or in the context. According to them, school administrators should give serious attention to the teachers' commitment to improve their knowledge and skills throughout their careers. Furthermore, if various professional learning activities were held at the schools, it will give a better impact on teachers' practices. Thus, an effective school-based professional learning model which



fit the Malaysian context should be identified so that teachers` will not have to work as well as learn in isolation.

Previously, in Malaysia teachers professional learning models were predominantly *ad hoc* where one-off workshops were conducted. There was a lack of congruence between the school administrators` roles, teachers` needs about professional learning and practices and inconsistency in terms of planning, purpose, activities and teacher involvement [2]. Hence, schools have been enforced by MOE to implement school-based professional learning to increase teacher involvement and continuously to improve their professionalism.

Many Western studies have focus on the characteristics and operation of school-based professional learning, but little is known about relationships between the school leaders` roles, teachers` professional learning models and practices as well as to search the optimal mix in Malaysian context. This study intends to propose a model to investigate the relationships among the discussed variables. The research participants were from 60 secondary schools in Malaysia. The study particularly targeted at the trained teacher and explored their perception of the actual condition of school leaders` roles, teachers` professional learning models and their effect on teachers` practice.

II. THEORETICAL FRAMEWORK

This section reviews the literature to identify the relevant practices comprising school-based professional learning leaders` roles, professional learning models and teachers` practice.

2.1 Professional Learning Leaders` Roles

According to Lindstrom and Speck [23] professional learning leaders` roles are concerned with certain roles that can lead to organizational culture changes which can create a professional learning community. They must have a clear understanding, as well as the skills and abilities to lead professional learning efforts within their school through shared leadership [44]. Studies conducted by Amin Senin [2], Leithwood, Day, Sammons, Harris and Hopkins [22], and Wei, Darling-Hammond, Andree, Richardson and Orphanos [46] regarding teachers` perspective showed that school administrator roles have influenced the professional learning activities in school. Their findings show that there are positive relationship between administrator leadership and teachers` learning. This showed that how important the school leaders role in enhancing school-based professional learning activities.

Lindstrom and Speck [23] identify four major leader roles which affect school-based professional learning: builder, designer, implementer and reflective leader, such roles have been adopted in related leader roles studies such as Kose [21]. Thus, according to the literature, professional learning leader roles can be classified into four dimension as suggested by Lindstrom and Speck 2004: builder, designer, implementer and reflective leader, which are used in our model.

2.2 Professional Learning Models

Professional learning is defined as the processes design to enhance teachers` knowledge, skills and attitudes either individually or collaboratively for the purpose of improving students` learning [43], [10]. Furthermore, according to Sparks and Loucks-Horsley [44], professional learning is a planning and design of learning which embodies a set of assumptions about where knowledge about teaching practices come from and how the teacher acquire or extend their knowledge. Studies conducted by Guskey [12],[13], Blank, de las Alas and Smith [45], and OECD [36] regarding teachers` perspective showed that there was relationship between professional learning model and teachers` practice. This showed that how important the professional learning models in enhancing teachers` practices.

Professional learning models must in different types of supports and challenges that aligned with teachers` need in order to engage effectively in the activities and grow from them [10] either through individual or collaborative learning. Creating various types of learning models, Killion [20] discovered, ignites and sustains teachers` excitement for "learning, growing and changing their practices". Therefore, this study highlighted seven currently practiced professional learning models that have different features and functions to view teachers` perception about school-based professional learning in Malaysia. Five are from Model of Staff Development by Sparks and Loucks-Horsley [43] and two models are from the Professional Learning Model by Roberts and Pruitt [40]. The models are individually-guided learning, collaborative problem solving, teaching observation and assessment, training, action research, study groups and professional portfolios.

2.3 Teachers` Practice

Teachers` practice is an evaluation of whether teachers used their new knowledge and skills on the job [13]. Studies conducted by Meher Rizvi [30] and Kose [21] regarding teachers` perspective showed that school administrator roles have influenced the teaching practices in school. The findings showed that there is relationship between administrator leadership and teachers` practice. This showed that how important the school leaders role in enhancing teachers` practice.

There were at least three major aspects of used or implementation need to be considered in changes of teachers` practice. According to Hall and Hord [16] this changes of practice can be evaluate through two aspects: stage of concern and level of use. These two aspects have been derived from the Concerns-Based Adoption Model of change (CBAM). While, Guskey [13] and Adey [1] proposed teachers` practice is measured on three aspects: concern, level of use and differences in practice.

Thus, according to the literature, teachers` practice can be classified into three dimension as suggested by Guskey [13] and Adey [1]: concern, usage of knowledge and skills and differences in practice, which are used in our model.

III RESEARCH DESIGN

The research design is shown in Figure 1. The relevant hypotheses of the model and the questionnaire design are presented below.

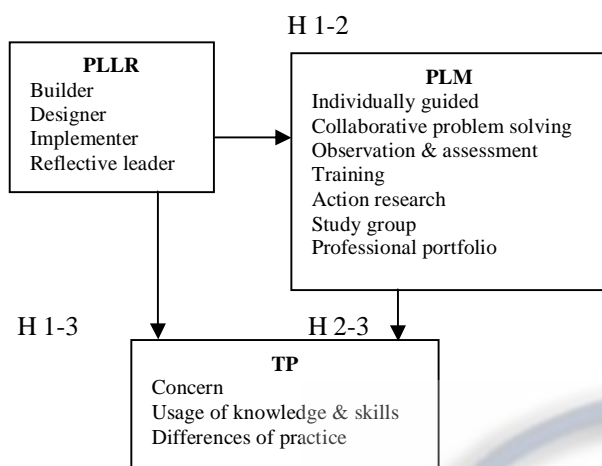


Figure 1: Propose research model

H 1-2. There is no relationship between professional learning leaders' roles and professional learning models.

H 1-3. There is no relationship between professional learning leaders' roles and teachers' practice.

H 2-3. There is no relationship between professional learning models and teachers' practice.

H 3. Professional learning models do not influence teachers' practice.

H 4 Professional learning leaders' roles and professional learning models do not influence teachers' practice.

3.1 Questionnaire Design

The questionnaire is composed of three parts including: professional learning leaders' roles (PLLR), professional learning models (PLM), and teachers' practice (TP). The questionnaire items were answered using a four-point Likert scale anchoring at 1, 2, 3, and 4 (strongly disagree, disagree, agree, strongly agree). According to Babbie [4] this scale is suitable to measure teachers' attitudes as well as opinions. Detailed definitions of the dimensions are described below:

3.1.1 Professional Learning Leaders' Roles.

The instrument used has been adopted from Lindstrom and Speck [23] and Speck and Knipe [24]. Based on the literature review [23], [24], [21]. Four major constructs were considered, namely builder, designer, implementer, reflective leader.

3.1.2. Professional Learning Models.

The instrument used has been adopted from Persico [39] and Amin Senin [2] with the consent from the previous researcher through e-mail, Roberts and Pruitt [40] and Murphy and Lick [34]. Based on the literature review [41], [13], [47], [40] seven most frequently used teachers' professional learning models are extracted and considered in this study, namely individually-guided, observation and assessment, involvement in improvement process, training, action research, professional portfolios and study groups.

3.1.3 Teachers' Practice.

The instrument used has been adopted from Hall and Hord [16] for concern and usage of knowledge and skills dimensions. While for change in practices' dimension, it is adopted from Guskey [13].

IV. ANALYSIS AND RESULT

4.1 Sampling

The data used in this research consists of 2 batch of questionnaires responses from participants in 60 regular secondary schools (*Sekolah Menengah Harian*) in Malaysia. There are two phase of data collections. First set of data was obtained from 19 regular secondary schools in Batang Padang district in Perak. This set of data were used in preliminary study as to perform exploratory factor analysis. 10 sets of questionnaires was distributed to each of these 19 regular secondary schools. A total of 190 survey forms were circulated, of which 170 surveys were return and 166 were valid for analysis [26].

While, the second batch of data was obtained from 41 regular secondary schools in Malaysia. A multistage cluster sampling technique has been used in this phase of data collection. This set of data was used to perform the multivariate analysis. The number of the population is 146,513 [31], it was expected that the sample would compromise 384 teachers [8] from 41 schools. A total of 410 survey forms were circulated, 10 forms for each school. The 380 surveys were return and 372 were valid for analysis [27].

4.2 Reliability and validity test

The Cronbach Alpha coefficients were used to measure the internal consistency of these scales [34]. In this study, the constructs which had Cronbach Alpha coefficients greater than .70 have been retained for further analysis [15]. Furthermore, measures with item-to-total correlation larger than .30 are considered to have criterion validity [15]. The item-to-total correlation of each measures was more than .30, we consider the criterion validity of each scale to be satisfactory.

The original questionnaire was translated into Malay language twice by experts using the 'back technique'. The items are reviewed by a panel of Sultan Idris Education University lecturers to ensure the translation of meaning and terminology met the theoretical background as the technique was recommended by Sireci, Yang, Harter and Ehrlich [42]. The panel consist of an assessment and measurement expert and two human resource development experts [26].

Then, the questionnaires have been administered to six trained teachers to identify if there were any confusion regarding the items and record it in the space provided for improvements or been dropped out [19], [11]. The purpose was to improve the items and to ensure it was suitable for Malaysian context. Furthermore, it was important to get feedback on quality of the questionnaire as it was easy to understand and used the appropriate language [28]. The samples were asked to evaluate about the clarity of each items by using the scale given [11]. A scale of 1 to 10 is used to determine the validity coefficient for each item.

According to Tuckman and Waheed [1981] in Sidek Mohd Noah and Jamaludin Ahmad [41] if the total of the score obtained from the experts is 70% or above, it means that the item has a high score for the content validity aspect. Otherwise the item will be dropped from the questionnaires [29]. The results of content validity are presented in Table 1 below.

Table 1: Content validity scores

Panel	Panel 1	Panel 2	Panel 3	Panel 4	Panel 5	Panel 6	Cum. Score (%)
(%)	92.72	91.51	88.48	82.42	82.42	80.00	86.84

Meanwhile, to ensure the instrument has reasonable construct validity, both exploratory and confirmatory factor analyses were used. The exploratory factor analysis (EFA) through orthogonal rotation with varimax method had been used. The EFA applied the following rules as suggested by Hair et al. [15] and Tabachnick and Fidell [45]:

- i. Bartlett's Test of Sphericity had to be significant ($p < .05$);
- ii. Kaiser-Meyer-Olkin measure of sampling index $\geq .5$;
- iii. Eigenvalue > 1 ;
- iv. Items with the factor loading $> .5$ were retained;
- v. Factors building were based on school-based professional learning theory and previous studies.

The factors are builder, designer, implementer and reflective leader for PLLR and concern, level of use and differences in practice for TP. However, for PLM only five factors retained: individually-guided, observation and assessment, involvement in improvement process, training, action research, professional portfolios and study groups. While, two factors which are observation and assessment as well as involvement in improvement process have been excluded. The results of exploratory factor analysis are presented in Table 2.

Table 2: Exploratory factor analysis and internal consistency values for the questionnaires

Construct	Number of Factor	Number of item per construct	Factor loading	Percentage of variance	Cumulative percentage	Cronbach's α
PLLR	4	3	.43-.69	9.70	55.61	.88
		5		16.13		
		6		16.86		
		5		12.62		
PLM	5	4	.52-.85	8.76	64.82	.89
		6		12.86		
		5		12.15		
		4		13.16		
TP	3	3	.54-.84	15.80	54.54	.85
		3		17.97		
		3		20.77		

Source: Mahaliza Mansor (24)

The confirmatory factor analysis was used test the stability of 12 factors from the three main constructs, fifty two item SBPL using AMOS Version 18 [3]. We analyzed this hypothesized three-construct model with all 12 factors as indicators of the variable individually. The parameters

were estimated using maximum likelihood [28]. This approach incorporates both observed and latent variables. Multiple indices provided a comprehensive evaluation of model fit [17]. We examined chi-square per degree of freedom ratio (χ^2/df), Comparative Fit Index (CFI), Goodness of Fit Index (GFI) and Root Mean Square Error of Approximation (RMSEA). These indices were used to evaluate the goodness-of-fit of the model that fit the data. However, given the known dependency of the chi-squared index depends on sample size [7] it is less suitable to use in determining the fitness of the model [18]. Therefore, indices such as CFI and GFI were also being evaluated. χ^2/df ratio value of less than 3 and value of .90 for CFI and GFI have been use as a lower cutoff value of the acceptable fit [35, 17]. In addition, the RMSEA value of less than .06 indicate a good fit, while the value as high as .80 indicate a reasonable fit [17]. The individual questionnaires items were composited into specific factor groups. The results of confirmatory factor analysis are presented in Table 3 below.

Table 3: Summary of fit indices from confirmatory factor analysis and internal consistency value

Model	χ^2/df	CFI	IFI	RMSEA	α
Unmodified hypothesized four-factor PLLR model	2.45	.98	.96	.06	.94
Unmodified hypothesized five-factor PLM model	2.42	.85	.85	.06	.89
Unmodified hypothesized three-factor TP model	2.68	.96	.96	.06	.84

4.3 Analysis of the model

The Pearson correlation and stepwise multiple regression approaches are used to test the proposed model and hypotheses. These approaches are the multivariate statistical techniques for testing proposed theory [15]. These analysis are conducted by SPSS version 18. In the proposed model (Figure 1) PLLR and PLM are considered independent variables as well as TP is considered dependent variable. The correlations of PLLR, PLM and TP are summarized in Table 4 below. PLLR has slightly week significant relationship toward TP compared to PLM. This indicates school administrators should put more attention on TP to increase teaching practices among teachers. However, the correlation between PLM and TP indicates stronger significant relationship. Based on the results of the study, all the null hypotheses (H 1-2, H 1-3, and H 2-3.) are rejected.

Table 4: Summary of correlation coefficient among variables

Variables	Mean	SP	PLLR	PLM	TP
PLLR	3.04	.35	-	.66**	.49**
PLM	2.98	.30		-	.73**
TP	3.20	.32			-

p < .05

A stepwise multiple regression analysis has been used to examine the relationship among PLM toward TP as well as PLLR and PLM toward TP. The result of regression analysis indicated that the influence of PLM on TP was statistically significant as shown in Table 5 below. The

research found that, the overall score of determination coefficient (R^2) as .52. The finding indicated that PLM contribution to TP is .52 or 52.10% of overall TP are explained by PLM. The rest 47.90% of TP may be influence by other models that were not explored in this research. However, Action research is the main predictor to the TP ($\beta = .31$, $t = 7.21$ and $p < .05$). This model contributed 33.50% while Professional portfolio ($\beta = .25$, $t = 5.84$ and $p < .05$) contributed only 9.30% to TP. Self directed learning is the third predictor ($\beta = .21$, $t = 4.36$ and $p < .05$) and contributed 7.30% to TP, while training is the fourth predictor ($\beta = .18$, $t = 3.96$ and $p < .05$) and contributed 2.00% to TP. Therefore, based on the results of the study, the fourth null hypotheses (H 3) is partially rejected.

Table 5: Summary of regression analysis of PLM on TP

Independent variables (x)	B	Beta (β)	ΔR^2	t	Sig .t	(%)
Action research	.29	.31	.33	7.21	.00	33.5
Professional portfolio	.17	.25	.09	5.84	.00	9.30
Self directed learning	.18	.21	.07	4.36	.00	7.30
Training	.15	.18	.02	3.96	.00	2.00

$p < .05$

The result of regression analysis indicated that the influence of PLM and PLLR on TP was statistically significant as shown in Table 6 below. The research found that, the overall score of determination coefficient (R^2) as .41. The finding indicated that PLM and PLLR contribution to TP is .41 or 41.50% of overall TP are explained by PLM and PLLR. The rest 58.50% of TP may be influence by other factors that were not explored in this research. However, PLM is the main predictor to the TP ($\beta = .53$, $t = 10.18$ dan $p < .05$). This model contributed 40.20% to TP, while PLLR ($\beta = .15$, $t = 2.90$ and $p < .05$) contributed only 1.3% to TP. Therefore, based on the results of the study, the fifth null hypotheses (H 4) is rejected.

Table 6: Summary of regression analysis of PLLR and PLM on TP

Independent variables (x)	B	Beta (β)	ΔR^2	t	Sig .t	(%)
PLM	.58	.53	.40	10.18	.00	40.20
PLLR	.14	.15	.01	2.90	.00	1.30

$p < .05$

V. DISCUSSION AND IMPLICATION

The following discussion is based upon the results of the analysis above. It is noted that PLLR has positive influence on PLM and TP as well as PLM on TP (H1-2, H1-3 and H2-3 are not supported). The finding of the fourth hypothesis (H3) demonstrated that PLM do influence TP. The regression result proved that PLM and PLLR do influence TP with p-value less then .05. This proved that PLLR should be combined with PLM to ensure that TP can be enhanced. The result of current study support the findings of prior studies concerning the relationship between PLLR and PLM [2], [22], [45]. The influence of

PLM on TP also has been supported [12], [14], [5], [36] as well as the influence of PLLR on TP [30], [21] directly.

The findings indicate that professional learning leaders` roles and professional learning models positively and continuously influences teachers` practice. This implies that the leaders` role is also a critical component in sustaining school-based professional learning as well as to shift the paradigm of teachers` learning in isolation as individual to collaborative learning. By creating different types of professional learning activities such as action research, professional portfolio, self directed learning and training that aligned with teachers` needs will ignites and sustains teachers` excitement for learning, growing and changing their practices. The search on finding the optimal mix-that assortment of leaders` roles, professional learning activities and teachers` practice that work best in Malaysian setting also has been revealed. This findings also useful to those involve in school-based professional learning, teacher educator as well as trainee teachers as it is a part of higher education curricular especially in teacher training institute throughout Malaysia.

Even though the empirical results of this study support the current model, at least three limitations should be carefully considered. First, since individual informants provide the empirical data, possible biases or preferences (e.g. learning styles, social preferences etc.) may exist due to different personal experiences or educational backgrounds. Secondly, participant involve only from secondary school teachers, therefore in future studies it should be extended to primary school teachers. Thirdly, the data were collected in Malaysia; the characteristics of these schools surveyed may be quite different from those in other areas or countries. Hence, the present results should not be assumed to represent the general case. However, it may provide a fundamental reference for the schools located in other areas or countries whose environments are similar to those in Malaysia.

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